

Patent Assignment Abstract of Title

Total Assignments: 1**Application #:** 09914995 **Filing Dt:** 01/18/2002**Patent #:** NONE**Issue Dt:****PCT #:** NONE**Publication #:** NONE**Pub Dt:****Inventors:** Norbert Becker, Georg Biehler, Matthias Diezel, Albrecht Donner, Dieter Eckardt, Manfred Kramer, Dirk Langkafel, Ralf Leins, Ronald Lange, Karsten Schneider, Helmut Windl**Title:** Method for the automatic retrieval of engineering data of systems**Assignment: 1****Reel/Frame:** 012561/0756**Received:**
02/14/2002**Recorded:**
01/18/2002**Mailed:**
05/30/2002**Pages:**
6**Conveyance:** ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).**Assignors:** BECKER, NORBERTBIEHLER, GEORGEDIEZEL, MATTHIASDONNER, ALBRECHTECKARDT, DIETERKRAMER, MANFREDLANGKAFEL, DIRKLEINS, RALFLANGE, RONALDSCHNEIDER, KARSTENWINDL, HELMUT**Exec Dt:** 08/22/2001**Exec Dt:** 08/22/2001**Exec Dt:** 09/10/2001**Exec Dt:** 09/20/2001**Exec Dt:** 09/18/2001**Exec Dt:** 10/02/2001**Exec Dt:** 09/11/2001**Exec Dt:** 08/28/2001**Exec Dt:** 08/23/2001**Exec Dt:** 09/11/2001**Exec Dt:** 08/29/2001**Assignee:** SIEMENS AKTIENGESELLSCHAFT

WITTELSBACHERPLATZ 2 D-80333

MUNCHEN, GERMANY

Correspondent: HARNESS, DICKEY & PIERCE, P.L.C.

DONALD J. DALEY

P.O. BOX 8910

RESTON, VA 20195

Search Results as of: 2/12/2004 9:52:06 A.M.

If you have any comments or questions concerning the data displayed, contact OPR / Assignments at 703-308-9723
Web interface last modified: Oct. 5, 2002

5/10/2002
fz Date



> home > about > feedback > login

US Patent & Trademark Office



Try the *new* Portal design

Give us your opinion after using it.

Search Results

Search Results for: **[installation<AND>((engineering and runtime<AND> ("automation system")))]]**
Found **3** of **127,132** searched.

Search within Results



> Advanced Search

> Search Help/Tips

Sort by: Title Publication Publication Date Score Binder

Results 1 - 3 of 3 short listing

1 Process and products for software reuse in Ada

Sholom Cohen

77%

Proceedings of the conference on TRI-ADA '90 December 1990

The large scale application of reuse to support software development is not a new concept. Over twenty years ago, M. D. McIlroy expressed the need for: "... standard catalogues of routines, classified by precision, robustness, time-space performance, size limits, and binding time of parameters." [McIlroy 68] He also provided insight that is still valid into: "... the kinds of variability necessary in software components, ways of producing useful inventories, type ...

2 Transparent fault tolerance for distributed Ada applications

Mark A. Breland , Steven A. Rogers , Guillaume P. Brat , Kenneth L. Nelson

77%

Proceedings of the conference on TRI-Ada '94 November 1994

The advent of open architectures and initiatives in massively parallel supercomputing, combined with the maturation of distributed processing methods and algorithms, has enabled the implementation of responsive software-based fault tolerance. Expanding capabilities of distributed Ada runtime environments further stimulate the incorporation of hardware fault tolerance into critical, realtime embedded systems. Through the integration of proven Ada program component distribution and virtually ...

3 Understanding fault-tolerant distributed systems

Flavin Cristian

77%

Communications of the ACM February 1991
Volume 34 Issue 2

Results 1 - 3 of 3 short listing

The ACM Portal is published by the Association for Computing Machinery. Copyright © 2004 ACM, Inc.



[> home](#) [> about](#) [> feedback](#) [> login](#)

US Patent & Trademark Office



Try the *new* Portal design

Give us your opinion after using it.

Search Results

Search Results for: **[engineering and runtime<AND>(("automation system"))]**
Found **24** of **127,132** searched.

Search within Results



[> Advanced Search](#)

[> Search Help/Tips](#)

Sort by: **Title** **Publication** **Publication Date** **Score** Binder

Results 1 - 20 of 24 short listing






Prev
Page

1 2

Next
Page

- 1** The Intel design automation system 80%
 Stephen Nachtsheim
21st Proceedings of the Design Automation Conference on Design automation
 June 1984
 The Intel Design Automation (DA) System is overviewed within the framework of Intel's business and technological goals. The philosophies and goals that direct development, acquisition, and deployment of DA capabilities throughout Intel are provided as a foundation for a more detailed discussion of specific areas within the total DA system. The "computing hierarchy" used within Intel world-wide for design and verification of its products is presented, as well as a ...
- 2** Ada implementation of an X Window System server 80%
 S. Lewin
Proceedings of the conference on Tri-Ada '89: Ada technology in context: application, development, and deployment January 1989
 Sanders is in the second year of a two year project to implement an X Window System server using the Ada programming language. X is a highly portable, network transparent display management system which was developed at MIT's Project Athena and has emerged as the industry standard for windowing systems. Our objectives are to implement a production-quality base windowing system suitable for use in Ada-based real-time systems, and to examine Ada's applicability as an implementation language f ...
- 3** Potpourri: Computing walsh, arithmetic, and reed-muller spectral 80%
 decision diagrams using graph transformations
 Whitney J. Townsend , Mitchell A. Thornton , Rolf Drechsler , D. Michael Miller
Proceedings of the 12th ACM Great Lakes Symposium on VLSI April 2002
 Spectral techniques have found many applications in computer-aided design,

including synthesis, verification, and testing. Decision diagram representations permit spectral coefficients to be calculated via graph-based algorithms. In this paper, algorithms are described for transforming multi-output functions to produce Walsh, arithmetic, and Reed-Muller spectral decision diagrams and the experimental results of those implementations are presented.

- 4** Understanding fault-tolerant distributed systems 80%
 Flavin Cristian
Communications of the ACM February 1991
 Volume 34 Issue 2
- 5** Fault-Tolerance in the Advanced Automation System 77%
 Flaviu Cristian
ACM SIGOPS Operating Systems Review April 1991
 Volume 25 Issue 2
- 6** A processor for a high-performance personal computer 77%
 Butler W. Lampson , Kenneth A. Pier
Proceedings of the 7th annual symposium on Computer Architecture May 1980
 This paper describes the design goals, micro- architecture, and implementation of the microprogrammed processor for a compact high performance personal computer. This computer supports a range of high level language environments and high bandwidth I/O devices. Besides the processor, it has a cache, a memory map, main storage, and an instruction fetch unit; these are described in other papers. The processor can be shared among 16 microcoded tasks, performing microcode context switches ...
- 7** An interactive design automation system 77%
 Stephen Y. H. Su
Proceedings of the tenth design automation workshop on Design automation
 June 1973
 An interactive design automation system is presented which, after complete implementation, will allow the designer to check the determinacy and dead locks of the system before implementation. The design can be evaluated at various levels and modified interactively. The designer enters his design specification using either graphical representation or design language statements. The translator accepts the input and produces a data base for both the simulator and the logic synthesizer. The syn ...
- 8** Application of hardware description languages to microprogramming: 77%
 Method, practice, and limitations
 Paul J. Drongowski , Charles W. Rose
Proceedings of the 12th annual workshop on Microprogramming November 1979
 The use of microprogrammable processors and networks of microcomputers has induced a reconsideration of development tools and methodologies for system design and construction. This article presents the history, structure, and use of a system developed at Case Western Reserve to support the development of these kinds of systems. Other applications of hardware description languages to microprogramming and system development are discussed. The paper concludes with a discussion of limitations o ...
- 9** The mimola design system: Tools for the design of digital processors 77%



Peter Marwedel

21st Proceedings of the Design Automation Conference on Design automation

June 1984

The MIMOLA design method is a method for the design of digital processors from a very high-level behavioral specification. A key feature of this method is the synthesis of a processor from a description of programs which are expected to be typical for the applications of that processor. Design cycles, in which the designer tries to improve automatically generated hardware structures, are supported by a retargetable microcode generator and by an utilization and performance analyzer. This paper ...

10 The retrieval power of NFQL

77%



Y. K. Ng , D. W. Embley

Proceedings of the seventeenth annual ACM conference on Computer science : Computing trends in the 1990's: Computing trends in the 1990's February 1989

Forms are common and well understood in our modern society, especially in the office. They organize and structure communication according to well established and long standing convention. The Natural Forms Query Language (NFQL) takes advantage of these features to provide a "natural" communication language between computers and humans. Various facets of NFQL have been discussed elsewhere. In this paper we explore the retrieval power of NFQL. We explain why basic NFQL forms (whic ...

11 Session 10: dynamic response systems: Containment units: a

77%

**hierarchically composable architecture for adaptive systems**

Jamieson M. Cobleigh , Leon J. Osterweil , Alexander Wise , Barbara Staudt Lerner

ACM SIGSOFT Software Engineering Notes November 2002

Volume 27 Issue 6

Software is increasingly expected to run in a variety of environments. The environments themselves are often dynamically changing when using mobile computers or embedded systems, for example. Network bandwidth, available power, or other physical conditions may change, necessitating the use of alternative algorithms within the software, and changing resource mixes to support the software. We present Containment Units as a software architecture useful for recognizing environmental changes and dyna ...

12 Dynamic response systems: Containment units: a hierarchically

77%

**composable architecture for adaptive systems**

Jamieson M. Cobleigh , Leon J. Osterweil , Alexander Wise , Barbara Staudt Lerner

Proceedings of the tenth ACM SIGSOFT symposium on Foundations of software engineering November 2002

Software is increasingly expected to run in a variety of environments. The environments themselves are often dynamically changing when using mobile computers or embedded systems, for example. Network bandwidth, available power, or other physical conditions may change, necessitating the use of alternative algorithms within the software, and changing resource mixes to support the software. We present Containment Units as a software architecture useful for recognizing environmental changes and dyna ...

13 XML transactions: Efficient synchronization for mobile XML data

77%



Franky Lam , Nicole Lam , Raymond Wong

Proceedings of the eleventh international conference on Information and knowledge management November 2002

Many handheld applications receive data from a primary database server and operate

in an intermittently connected environment these days. They maintain data consistency with data sources through synchronization. In certain applications such as sales force automation, it is highly desirable if updates on the data source can be reflected at the handheld applications immediately. This paper proposes an efficient method to synchronize XML data on multiple mobile devices. Each device retrieves and cac ...

14 System level modeling and verification: Embedded systems verification 77%
 with FPGA-enhanced in-circuit emulator

M. Meerwein , C. Baumgartner , T. Wieja , W. Glauert

Proceedings of the 13th international symposium on System synthesis September 2000

In this paper we present a novel coverification concept for embedded microcontrollers that satisfies industrial requirements. Based on a commercially available CPU in-circuit emulator coupled with FPGA boards, it verifies the correctness of an implementation in terms of function and timing within a real-world environment. Using our system, the software engineer can write, test and optimize programs for a chip that is not yet physically existent. In addition the system is used to obtain software m ...

15 DVM: an object-oriented framework for building large distributed Ada 77%
 systems

Christopher J. Thompson , Vincent Celier

Proceedings of the conference on TRI-Ada '95: Ada's role in global markets: solutions for a changing complex world November 1995

16 Modeling layout tools to derive forward estimates of area and delay at 77%
 the RTL level

Donald S. Gelosh , Dorothy E. Steliff

ACM Transactions on Design Automation of Electronic Systems (TODAES) July 2000

Volume 5 Issue 3

Forward estimates of area and delay facilitate effective decision-making when searching the solution space of digital designs. Current estimation techniques focus on modeling the layout result and fail to deliver timely or accurate estimates. This paper presents a novel approach to deriving these area and delay estimates at the RTL level by modeling the layout tool, rather than the layout result. This approach uses machine learning techniques to capture the relationships between general des ...

17 Building a layered database for design automation

Robert V. Zara , David R. Henke

77%

Proceedings of the 22nd ACM/IEEE conference on Design automation June 1985

A layered approach is presented for the database of a distributed, interactive design automation system. Levels of abstraction are described from the point of view of the bottom-up designer. The controversy between the relational and network database formats is explored in the central abstraction: an object-oriented layer which attempts to select the advantages of each of these two formats while avoiding their respective disadvantages. This object-oriented approach treats each of ...

18 A processor for a high-performance personal computer

Butler W. Lampson , Kenneth A. Pier


77%

25 years of the international symposia on Computer architecture (selected

papers) August 1998

19 Module selection for pipelined synthesis

77%


 Rajiv Jain , Alice Parker , Nohbyung Park

Proceedings of the 25th ACM/IEEE conference on Design automation June 1988

Module selection is one of the many functions which have to be performed during behavioral synthesis of pipelined designs. Module selection is the process of choosing the types of modules (e.g. carry-look-ahead adder) to implement each operation (e.g. addition). In this paper, we give a limited solution to the module selection problem for pipelined designs. A model for estimating area-time tradeoffs [3] for pipelined designs is used to formulate the module selection problem, and an overview ...



20 SmartATMS: a simulator for air traffic management systems

77%

 Tak-Kuen John Koo , Yi Ma , George J. Pappas , Claire Tomlin

Proceedings of the 29th conference on Winter simulation December 1997

Results 1 - 20 of 24 short listing

 **Prev**
Page 1 2  **Next**
Page

The ACM Portal is published by the Association for Computing Machinery. Copyright © 2004 ACM, Inc.



> home > about > feedback > login

US Patent & Trademark Office



Try the *new* Portal design

Give us your opinion after using it.

Search Results

Search Results for: **[engineering and runtime<AND>(("automation system"))]**
Found **24** of **127,132** searched.

Search within Results



> Advanced Search

> Search Help/Tips

Sort by: Title Publication Publication Date Score Binder

Results 21 - 24 of 24 short listing



1 2



21 Process and products for software reuse in Ada

77%



Sholom Cohen

Proceedings of the conference on TRI-ADA '90 December 1990

The large scale application of reuse to support software development is not a new concept. Over twenty years ago, M. D. McIlroy expressed the need for: "... standard catalogues of routines, classified by precision, robustness, time-space performance, size limits, and binding time of parameters." [McIlroy 68] He also provided insight that is still valid into: "... the kinds of variability necessary in software components, ways of producing useful inventories, type ...

22 Summary of ARTEWG workshop on distributed systems

77%



Mike Kamrad

ACM SIGAda Ada Letters September 1995
Volume XV Issue 5

23 Transparent fault tolerance for distributed Ada applications

77%



Mark A. Breland, Steven A. Rogers, Guillaume P. Brat, Kenneth L. Nelson

Proceedings of the conference on TRI-Ada '94 November 1994

The advent of open architectures and initiatives in massively parallel supercomputing, combined with the maturation of distributed processing methods and algorithms, has enabled the implementation of responsive software-based fault tolerance. Expanding capabilities of distributed Ada runtime environments further stimulate the incorporation of hardware fault tolerance into critical, realtime embedded systems. Through the integration of proven Ada program component distribution and virtually ...

24 High level synthesis of pipelined instruction set processors and back-end

77%



compilers

I.-J. Huang , A. M. Despain

Proceedings of the 29th ACM/IEEE conference on Design automation conference
July 1992

Results 21 - 24 of 24 short listing
Prev
Page**1 2**
Next
Page

The ACM Portal is published by the Association for Computing Machinery. Copyright © 2004 ACM, Inc.



> home > about > feedback > login

US Patent & Trademark Office



Try the *new* Portal design

Give us your opinion after using it.

Search Results

Search Results for: **[retrieve and installation<AND>((automation and (engineering <near/2> (object))))]**
Found **13** of **127,132** searched.

Search within Results

"uniform object model"



> Advanced Search

> Search Help/Tips

Sort by: Title Publication Publication Date Score Binder

Results 1 - 13 of 13 short listing

- 1** How to identify binary relations for domain models 88%
 Hermann Kaindl
Proceedings of the 18th international conference on Software engineering May 1996
 Many approaches to requirements engineering include building a model of the domain. Those using entity relationship modeling or deriving from it employ the concept of relations between entities, but identifying the relations is still more of an art than science or engineering. We deal with this problem primarily in the context of object oriented analysis (OOA), where relations between object classes are to be identified. Our new approach uses natural language definitions of object classes and lo ...
- 2** An object-oriented approach to data management: why design 82%
 databases need it
 S. Heiler , U. Dayal , J. Orenstein , S. Radke-Sproull
24th ACM/IEEE conference proceedings on Design automation conference October 1987
 An object-oriented approach to management of engineering design data requires object persistence, object-specific rules for concurrency control and recovery, views, complex objects and derived data, and specialized treatment of operations, constraints, relationships and type descriptions. We discuss object-orientation as more than an implementation paradigm, and show how an object-oriented approach simplifies both use and implementation of engineering design systems.
- 3** Technical columns: Distributed computing research issues in grid 80%
 computing
 Henri Casanova
ACM SIGACT News September 2002
 Volume 33 Issue 3

Ensembles of distributed, heterogeneous resources, or *Computational Grids*, have emerged as popular platforms for deploying large-scale and resource-intensive applications. Large collaborative efforts are currently underway to provide the necessary software infrastructure. *Grid computing* raises challenging issues in many areas of computer science, and especially in the area of *distributed computing*, as Computational Grids cover increasingly large networks and span many organi ...

4 WREN---an environment for component-based development 80%



Chris Lürer , David S. Rosenblum

ACM SIGSOFT Software Engineering Notes , Proceedings of the 8th European software engineering conference held jointly with 9th ACM SIGSOFT international symposium on Foundations of software engineering September 2001
Volume 26 Issue 5

Prior research in software environments focused on three important problems---tool integration, artifact management, and process guidance. The context for that research, and hence the orientation of the resulting environments, was a traditional model of development in which an application is developed completely from scratch by a single organization. A notable characteristic of component-based development is its emphasis on integrating independently developed components produced by multiple orga ...

5 Research directions in object-oriented database systems 80%



Won Kim

Proceedings of the ninth ACM SIGACT-SIGMOD-SIGART symposium on Principles of database systems April 1990

The set of object-oriented concepts found in object-oriented programming languages forms a good basis for a data model for post-relational database systems which will extend the domain of database applications beyond conventional business data processing. However, despite the high level of research and development activities during the past several years, there is no standard object-oriented data model, and criticisms and concerns about the field still remain. In this paper, I will first pr ...

6 Special issue on persistent object systems: Orthogonally persistent object systems 77%



Malcolm Atkinson , Ronald Morrison

The VLDB Journal — The International Journal on Very Large Data Bases July 1995

Volume 4 Issue 3

Persistent Application Systems (PASs) are of increasing social and economic importance. They have the potential to be long-lived, concurrently accessed, and consist of large bodies of data and programs. Typical examples of PASs are CAD/CAM systems, office automation, CASE tools, software engineering environments, and patient-care support systems in hospitals. Orthogonally persistent object systems are intended to provide improved support for the design, construction, maintenance, and operation o ...

7 Industry track papers and presentations: product lines: Integrating hundred's of products through one architecture: the industrial IT architecture 77%




Lars G. Bratthall , Robert van der Geest , Holger Hofmann , Edgar Jellum , Zbigniew Korendo , Robert Martinez , Michal Orkisz , Christian Zeidler , Johan S Andersson

Proceedings of the 24th international conference on Software engineering May 2002

During the last few years, software product line engineering has gained significant interest as a way for creating software products faster and cheaper. But what architecture is needed to integrate huge amounts of products, from different product lines? This paper describes such an architecture and its support processes and tools. Through cases, it is illustrated how the architecture is used to integrate new --- and old --- products in such diverse integration projects as vessel motion control, ...


- 8** Forced simulation: A technique for automating component reuse in embedded systems 77%

 Partha S. Roop , A. Sowmya , S. Ramesh


ACM Transactions on Design Automation of Electronic Systems (TODAES) October 2001

Volume 6 Issue 4


Component reuse techniques have been a recent focus of research because they are seen as the next-generation techniques to handle increasing system complexities. However, there are several unresolved issues to be addressed and prominent among them is the issue of *component matching*. As the number of reusable components in a component database grows, the task of manually matching a component to the user requirements becomes infeasible. Automating this matching can help in rapid system prot ...
- 9** Enterprise architecture for business process simulation 77%

 Ali Bahrami , Deborah Sadowski , Soheila Bahrami

Proceedings of the 30th conference on Winter simulation December 1998
- 10** Managing semantic heterogeneity in databases: a theoretical prospective 77%

 Richard Hull


Proceedings of the sixteenth ACM SIGACT-SIGMOD-SIGART symposium on Principles of database systems May 1997
- 11** SIGMOD challenges paper: database issues in telecommunications network management 77%

 Ilsoo Ahn

ACM SIGMOD Record , Proceedings of the 1994 ACM SIGMOD international conference on Management of data May 1994

Volume 23 Issue 2

Various types of computer systems are used behind the scenes in many parts of the telecommunications network to ensure its efficient and trouble-free operation. These systems are large, complex, and expensive real-time computer systems that are mission critical, and contains a database engine as a critical component. These systems share some of common database issues with conventional applications, but they also exhibit rather unique characteristics that present challenging database issues. ...
- 12** Exploiting reusable specifications through analogy 77%

 Neil Maiden , Alistair Sutcliffe

Communications of the ACM April 1992

Volume 35 Issue 4
- 13** Industrial strength hypermedia: requirements for a large engineering 77%



enterprise

Kathryn C. Malcolm , Steven E. Poltrock , Douglas Schuler

Proceedings of the third annual ACM conference on Hypertext September 1991

Results 1 - 13 of 13 short listing

The ACM Portal is published by the Association for Computing Machinery. Copyright © 2004 ACM, Inc.



[> home](#) [> about](#) [> feedback](#) [> login](#)

US Patent & Trademark Office



Try the *new* Portal design

Give us your opinion after using it.

Search Results

Search Results for: **[automation<AND>(("uniform object model"))]**
Found **6** of **127,132** searched.

Search within Results



[> Advanced Search](#)

[> Search Help/Tips](#)

Sort by: **Title** **Publication** **Publication Date** **Score** **Binder**

Results 1 - 6 of 6 **short listing**

- 1** **Papers: Quantifiable architecting of dependable systems of embedded systems** 80%
 Sheldon X. Liang , Valdis Berzins Luqi
ACM SIGSOFT Software Engineering Notes November 2003
 Volume 28 Issue 6
 Architecture is a critical aspect in the successful development and evolution of dependable systems of embedded systems (SoES). Quantifiably architecting such systems involves establishing consensus from the particular perspectives of quality attributes. Unfortunately, there are few established approaches for rapidly prototyping architecture to identify key architectural artifacts that carry quantifiable constraints throughout the software development processes. This paper presents a quantifiabl ...
- 2** **Automatic prototype generating via optimized object model** 80%
 Sheldon X. Liang , Lynn Zhang , Luqi
ACM SIGAda Ada Letters June 2003
 Volume XXIII Issue 2
 Computer-aided prototyping shows promise that one system under development frees designers from implementation details by executing specifications via reusable components. Ada is first choice for constructing such reusable object-oriented components because Ada95 is the only international standard programming language that supports object-oriented real-time distributed systems. But Ada has diversified object forms that are so intricate that people feel it difficult to find an equivalence of a cl ...
- 3** **Object-oriented technology: Using objects to distribute configuration management tasks** 77%
 Terry Coatta
Proceedings of the 1993 conference of the Centre for Advanced Studies on Collaborative research: software engineering - Volume 1 October 1993
 Distributed programming techniques have transformed applications into federations of cooperating semi-autonomous components. Complex interactions between these

components create complex interdependencies which are quickly outstripping the capacity of human systems managers. Adding configuration management features to an application's components reduces the flexibility and portability of those components. The Raven Configuration Management System (RCMS) provides an environment in which configurat ...

4 Kava: a Java dialect with a uniform object model for lightweight classes 77%



David F. Bacon

Proceedings of the 2001 joint ACM-ISCOPE conference on Java Grande June 2001

Object-oriented programming languages have always distinguished between "primitive" and "user-defined" data types, and in the case of languages like C++ and Java, the primitives are not even treated as objects, further fragmenting the programming model. The distinction is especially problematic when a particular programming community requires primitive-level support for a new data type, as for complex, intervals, fixed-pointed numbers, and so on.

We present Kav ...

5 Supporting the evolution of class definitions 77%



Theodore C. Goldstein

ACM SIGPLAN OOPS Messenger , Addendum to the proceedings on Object-oriented programming systems, languages, and applications (Addendum) April 1993

Volume 5 Issue 2

6 Objects in large distributed applications (OLDA-II) 77%



Peter Dickman

ACM SIGPLAN OOPS Messenger , Addendum to the proceedings on Object-oriented programming systems, languages, and applications (Addendum) December 1992

Volume 4 Issue 2

Results 1 - 6 of 6 short listing

The ACM Portal is published by the Association for Computing Machinery. Copyright © 2004 ACM, Inc.



> home > about > feedback > login

US Patent & Trademark Office



Try the *new* Portal design

Give us your opinion after using it.

Search Results

Nothing Found

Your search for the Phrase "**engineering object**"<AND>(("runtime object")) did not return any results.

To search for *terms* separate them with **AND** or **OR**.

Click on the suggested options:

"engineering AND object"<AND>(("runtime AND object") AND)

"engineering OR object"(("runtime OR object") OR)

To search for names try using only the last or first name.

You may revise it and try your search again below or click advanced search for more options.

"engineering object"<AND>
(("runtime object"))

SEARCH

[Advanced Search] [Search Help/Tips]



Complete Search Help and Tips

The following characters have specialized meaning:

Special Characters	Description
, () [These characters end a text token.
= > < !	These characters end a text token because they signify the start of a field operator. (! is special: != ends a token.)
` @ \Q < { [!	These characters signify the start of a delimited token. These are terminated by the end character associated with the start character.



[> home](#) [> about](#) [> feedback](#) [> login](#)

US Patent & Trademark Office



Try the *new* Portal design

Give us your opinion after using it.

Search Results

Search Results for: **[automation and installation<AND>((engineering <AND> ("runtime object"))))]**

Found **1** of **127,132** searched.

Search within Results



[> Advanced Search](#)

[> Search Help/Tips](#)

Sort by: Title Publication Publication Date Score



Binder

Results 1 - 1 of 1 short listing

1 Object database support for a software project management 77%



environment

Lung-Chun Liu , Ellis Horowitz

Proceedings of the third ACM SIGSOFT/SIGPLAN software engineering symposium on Practical software development environments November 1988
Volume 13 , 24 Issue 5 , 2

The recent development of object-oriented database models, which combine the power of object programming and the efficient management of data, provides a feasible solution for the construction of a computer-aided software engineering environment or CASE. However, an object oriented database provides only a kernel set of capabilities. This paper identifies the data management requirements related to software project management and shows how they are represented in the model called Design-Net ...

Results 1 - 1 of 1 short listing

The ACM Portal is published by the Association for Computing Machinery. Copyright © 2004 ACM, Inc.

IEEE HOME | SEARCH IEEE | SHOP | WEB ACCOUNT | CONTACT IEEE



Membership Publications/Services Standards Conferences Careers/Jobs

Welcome
United States Patent and Trademark Office
[Help](#) [FAQ](#) [Terms](#) [IEEE Peer Review](#)

Quick Links

» Se

Welcome to IEEE Xplore®

- ☐ Home
- ☐ What Can I Access?
- ☐ Log-out

Tables of Contents

- ☐ Journals & Magazines
- ☐ Conference Proceedings
- ☐ Standards

Search

- ☐ By Author
- ☐ Basic
- ☐ Advanced

Member Services

- ☐ Join IEEE
- ☐ Establish IEEE Web Account
- ☐ Access the IEEE Member Digital Library

Your search matched **11** of **1003743** documents.
A maximum of **500** results are displayed, **15** to a page, sorted by **Relevance Descending** order.

Refine This Search:

You may refine your search by editing the current search expression or enter a new one in the text box.

Search

☐ Check to search within this result set

Results Key:

JNL = Journal or Magazine **CNF** = Conference **STD** = Standard

1 SIMOO-RT-an object-oriented framework for the development of real time industrial automation systems

Becker, L.B.; Pereira, C.E.;

Robotics and Automation, IEEE Transactions on , Volume: 18 , Issue: 4 , Aug 2002

Pages:421 - 430

[\[Abstract\]](#) [\[PDF Full-Text \(779 KB\)\]](#) IEEE JNL

2 Visual constraint diagrams: runtime conformance checking of UML models versus implementations

Turner, C.J.; Graham, T.C.N.; Wolfe, C.; Ball, J.; Holman, D.; Stewart, H.D.; Ryman, A.G.;

Automated Software Engineering, 2003. Proceedings. 18th IEEE International Conference on , 6-10 Oct. 2003

Pages:271 - 276

[\[Abstract\]](#) [\[PDF Full-Text \(388 KB\)\]](#) IEEE CNF

3 Dependence management for dynamic reconfiguration of component based distributed systems

Xuejun Chen;

Automated Software Engineering, 2002. Proceedings. ASE 2002. 17th IEEE International Conference on , 23-27 Sept. 2002

Pages:279 - 284

[\[Abstract\]](#) [\[PDF Full-Text \(291 KB\)\]](#) IEEE CNF

4 Proceedings First IEEE International Workshop on Source Code Analysis and Manipulation

Source Code Analysis and Manipulation, 2001. Proceedings. First IEEE International Workshop on , 10 Nov. 2001

[\[Abstract\]](#) [\[PDF Full-Text \(36 KB\)\]](#) IEEE CNF

5 Knowledge-based re-engineering of legacy programs for robustness: automated design

Keane, J.; Ellman, T.;

Knowledge-Based Software Engineering Conference, 1996., Proceedings of the 11th , 25-28 Sept. 1996

Pages:104 - 113

[\[Abstract\]](#) [\[PDF Full-Text \(852 KB\)\]](#) IEEE CNF

6 Adding roles to CORBA objects

Canal, C.; Fuentes, L.; Pimentel, E.; Troya, J.M.; Vallecillo, A.;

Software Engineering, IEEE Transactions on , Volume: 29 , Issue: 3 , March 2000

Pages:242 - 260

[\[Abstract\]](#) [\[PDF Full-Text \(803 KB\)\]](#) IEEE JNL

7 A framework for resource-constrained rate-optimal software pipeline

Govindarajan, R.; Altman, E.R.; Gao, G.R.;

Parallel and Distributed Systems, IEEE Transactions on , Volume: 7 , Issue: 11 , Nov. 1996

Pages:1133 - 1149

[\[Abstract\]](#) [\[PDF Full-Text \(1684 KB\)\]](#) IEEE JNL

8 Engineering components for ease of customisation and evolution

Jarzabek, S.; Seviara, R.;

Software, IEE Proceedings- [see also Software Engineering, IEE Proceedings] , Volume: 147 , Issue: 6 , Dec. 2000

Pages:237 - 248

[\[Abstract\]](#) [\[PDF Full-Text \(1000 KB\)\]](#) IEEE JNL

9 Java-based automated test systems: management considerations for open architecture for test

Tyler, D.F.;

AUTOTESTCON '99. IEEE Systems Readiness Technology Conference, 1999. IEEE , 30 Aug.-2 Sept. 1999

Pages:699 - 706

[\[Abstract\]](#) [\[PDF Full-Text \(412 KB\)\]](#) IEEE CNF

10 System services for distributed application configuration

Bellissard, L.; Boyer, F.; Riveill, M.; Vion-Dury, J.-Y.;

Configurable Distributed Systems, 1998. Proceedings., Fourth International Conference on , 4-6 May 1998

Pages:53 - 60

[\[Abstract\]](#) [\[PDF Full-Text \(60 KB\)\]](#) IEEE CNF

11 Temporal analysis and object-oriented real-time software development: a case study with ROOM/ObjectTime

Gaudreau, D.; Freedman, P.;

Real-Time Technology and Applications Symposium, 1996. Proceedings., 1996 IEEE, 10-12 June 1996

Pages:110 - 118

[\[Abstract\]](#) [\[PDF Full-Text \(600 KB\)\]](#) **IEEE CNF**

[Home](#) | [Log-out](#) | [Journals](#) | [Conference Proceedings](#) | [Standards](#) | [Search by Author](#) | [Basic Search](#) | [Advanced Search](#) | [Join IEEE](#) | [Web Account](#) | [New this week](#) | [OPAC Linking Information](#) | [Your Feedback](#) | [Technical Support](#) | [Email Alerting](#) | [No Robots Please](#) | [Release Notes](#) | [IEEE Online Publications](#) | [Help](#) | [FAQ](#) | [Terms](#) | [Back to Top](#)

Copyright © 2004 IEEE — All rights reserved

IEEE HOME | SEARCH IEEE | SHOP | WEB ACCOUNT | CONTACT IEEE


[Membership](#) [Publications/Services](#) [Standards](#) [Conferences](#) [Careers/Jobs](#)
IEEE Xplore®
 RELEASE 1.6

 Welcome
 United States Patent and Trademark Office

[Help](#) [FAQ](#) [Terms](#) [IEEE Peer Review](#)
[Quick Links](#)
» [ABS](#)

Welcome to IEEE Xplore®

- ☐ Home
- ☐ What Can I Access?
- ☐ Log-out

Tables of Contents

- ☐ Journals & Magazines
- ☐ Conference Proceedings
- ☐ Standards

Search

- ☐ By Author
- ☐ Basic
- ☐ Advanced

Member Services

- ☐ Join IEEE
- ☐ Establish IEEE Web Account
- ☐ Access the IEEE Member Digital Library

[Search Results](#) [\[PDF FULL-TEXT 779 KB\]](#) [NEXT](#) [DOWNLOAD CITATION](#)


SIMOO-RT-an object-oriented framework for the development of real-time industrial automation sys

Becker, L.B. Pereira, C.E.

Univ. Fed. do Rio Grande do Sul, Porto Alegre, Brazil

This paper appears in: Robotics and Automation, IEEE Transactions on

Publication Date: Aug. 2002

On page(s): 421 - 430

Volume: 18 , Issue: 4

ISSN: 1042-296X

Inspec Accession Number: 7472211

Abstract:

Presents SIMOO-RT, an **object**-oriented framework designed to support the development cycle of real-time industrial **automation** systems. It is based on concept of distributed active **objects**, which are autonomous execution entities with their own thread of control, and that interact with each other by means of remote methods invocation. SIMOO-RT covers most of the development phases, from requirements **engineering** to implementation. It starts with the construction of an **object** model of the technical plant to be **automated**, on which user and problem domain requirements are captured. Here, emphasis is on modeling timing constraints. The technical details involved in the process of mapping problem-domain requirements to design specific entities as well as the automatic code generation for the **runtime** application are discussed in the paper. Furthermore, details are given on how to evaluate its timing restrictions.

Index Terms:

[distributed object management](#) [industrial control](#) [object-oriented methods](#) [real-time remote procedure calls](#) [software tools](#) [systems analysis](#) [SIMOO-RT](#) [automatic code generation](#) [autonomous execution entities](#) [design specific entities](#) [development cycle](#) [distributed objects](#) [object-oriented framework](#) [problem-domain objects](#) [real-time industrial automation systems](#) [remote methods invocation](#) [requirements engineering](#) [runtime applications](#) [tools](#) [system analysis](#) [system design](#) [timing constraints](#) [timing restrictions](#)

Documents that cite this document

There are no citing documents available in IEEE Xplore at this time.

Reference list:

1, M.Awad, J.Kuusela, and J.Ziegler, *Object-Oriented Technology for Real-Time Systems: A Practical Approach Using OMT and Fusion* Englewood Cliffs, NJ: Prentice Hall, 1996.

[\[Buy Via Ask*IEEE\]](#)

2, L. B.Becker and C. E.Pereira, "From design to implementation: Tool support for the development of object-oriented distributed real-time systems," in *Proc. 12th Int. Conf. Real-Time Systems* Stockholm, Sweden, June 2000, pp. 108-115.

[\[Abstract\]](#) [\[PDF Full-Text \(240KB\)\]](#)

3, L. B.Becker, R.Wild, and C. E.Pereira, "An architecture for validating object-oriented timing specifications," in *Proc. 5th World Multiconf. Systemics, Cybernetics, Informatics* Orlando, FL, July 2001.

[\[Buy Via Ask*IEEE\]](#)

4, L. B.Becker, C. E.Pereira, E.Nett, and M.Gergeleit, "An integrated environment for the complete development cycle of an object-oriented distributed real-time system," in *Issue on ISORC Series, Computer Systems Science & Engineering* Leics, UK: Springer-Verlag, 2001, vol. 16, pp. 89-96.

[\[Buy Via Ask*IEEE\]](#)

5, L. B.Becker, C. E.Pereira, O.Dias, I.Teixeira, and J.Teixeira, "On identifying and evaluating architectures for real-time applications," in *Contr. Eng. Practice*, vol. 7, pp. 403-409, 2001.

[\[CrossRef\]](#) [\[Buy Via Ask*IEEE\]](#)

6, L. B.Becker, C. E.Pereira, O.Dias, I.Teixeira, and J.Teixeira, "Optimizing function distribution in complex system design," in *Proc. Int. Workshop Distributed and Embedded Systems* Paderborn, Germany, Oct. 2000, pp. 75-86.

[\[Buy Via Ask*IEEE\]](#)

7, T.Bihari and P.Gopinath, "Object-oriented real-time systems: Concepts and examples," *IEEE Computer*, vol. 25, pp. 25-32, Dec. 1992.

[\[Abstract\]](#) [\[PDF Full-Text \(892KB\)\]](#)

8, G.Bollella, J.Gosling, and B.Brosgol, *The Real-Time Specification for Java* Cambridge, MA: Addison-Wesley, 2000, p. 195.

[\[Buy Via Ask*IEEE\]](#)

9, G.Booch, *Object-Oriented Development* Redwood City, CA: Benjamin Cummings, 1991.

[\[Buy Via Ask*IEEE\]](#)

10, G.Booch, I.Jacobson, and J.Rumbaugh, *The Unified Modeling Language User Guide* Reading, MA: Addison-Wesley, 1999.

[\[Buy Via Ask*IEEE\]](#)

11, C.Brudna, C.Mitidieri, C. E.Pereira, and L.Kaiser, "Methodology and tools for developing distributed real-time applications," in *Proc. 25th Workshop Real Time Programming* Palma de Mallorca, Spain, 2000, pp. 211-216.

[\[Buy Via Ask*IEEE\]](#)

- 12, B.Copstein, F.Wagner, and C.Pereira, "SIMOO—An environment for the o
oriented discrete simulation," in *Proc. 9th Eur. Simulation Symp. (ESS'97)* Pa:
Germany, Oct. 1997, pp. 21-25.
[\[Buy Via Ask*IEEE\]](#)
- 13, O.Dias, I.Teixeira, and J.Teixeira, "Metrics and criteria for quality assessr
testable Hw/Sw system architectures," *J. Elect. Testing, Theory, Applicat. (JE*
11, no. 1/2, pp. 149-158, 1999.
[\[Buy Via Ask*IEEE\]](#)
- 14, B.Douglas, *Real-Time UML: Design Efficient Objects for Embedded System*
MA: Addison-Wesley, 1998.
[\[Buy Via Ask*IEEE\]](#)
- 15, A. Flores *et al.*, "Quantitative evaluation of distributed object-oriented pr
environments for real-time applications," in *Proc. 2nd IEEE Int. Symp. Object*
Real-Time Distributed Computing Saint-Malo, France, 1999, pp. 133-138.
[\[Abstract\]](#) [\[PDF Full-Text \(148KB\)\]](#)
- 16, M. Gergeleit, E. Nett, and M. Mock, "An adaptive approach to object-orien
time computing," in *Proc. 1st IEEE Int. Symp. Object-Oriented Real-Time Dist*
Computing Kyoto, Japan, 1998, pp. 342-349.
[\[Abstract\]](#) [\[PDF Full-Text \(88KB\)\]](#)
- 17, H.Gomaa, *Designing Concurrent Distributed, and Real-Time Applications*
Reading, MA: Addison-Wesley, 2000.
[\[Buy Via Ask*IEEE\]](#)
- 18, W.Halang and A.Stoyenko, *Constructing Predictable Real-Time Systems I*
Kluwer, 1991.
[\[Buy Via Ask*IEEE\]](#)
- 19, D.Harel, "Statecharts: A visual formalism for complex systems," *Science*
Computer Programming 8 Amsterdam, The Netherlands: North-Holland, 1987
274.
[\[Buy Via Ask*IEEE\]](#)
- 20, in *IEEE Int. Symp. Real-Time Distributed Object Computing—Conf. Serie:*
[\[Buy Via Ask*IEEE\]](#)
- 21, R.Kemmerer and C.Ghezzi, "Guest editors introduction: Specification and
real-time systems," *IEEE Trans. Software Eng.*, vol. 18, pp. 766-767, Sept. 19
[\[Buy Via Ask*IEEE\]](#)
- 22, K.Kim *et al.*, "A real-time object model RTO.k and an experimental invest
its potentials," in *Proc. COMPSAC'94* Taipei, Taiwan, R.O.C., 1994, pp. 392-40
[\[Abstract\]](#) [\[PDF Full-Text \(912KB\)\]](#)
- 23, K.Kim, "Real-time object-oriented distributed software engineering and ti
scheme," *Int. J. Software Eng. Knowledge Eng.*, vol. 2, pp. 251-276, Apr. 199
[\[CrossRef\]](#) [\[Buy Via Ask*IEEE\]](#)

- 24, K.Kim, "API's for real-time distributed object programming," *IEEE Comput Issue on OO RT Distributed Computing*, vol. 33, pp. 72-80, June 2000.
[Abstract] [PDF Full-Text (284KB)]
- 25, F. Lange, R. Kroeger, and M. Gergeleit, "JEWEL: Design and implementat distributed measurement system," *IEEE Trans. Parallel Distrib. Syst.*, vol. 3, p Nov. 1992.
[Buy Via Ask*IEEE]
- 26, Microsoft. *DCOM Technical Overview. Tech. Rep. Microsoft Windows NT S* Paper Seattle, WA, 1996.
- 27, Microsoft. *Distributed Component Object Model (DCOM): Downloads, Spe Samples, Papers, and Resources for Microsoft DCOM* Seattle, WA, <http://www.microsoft.com/com/tech/dcom.asp>, 2000.
- 28, OMG. *Corba Specification v. 2.2* Needham, MA, OMG Document formal/9: 1998.
- 29, OMG. *Real-Time Corba* Seattle, WA, OMG Document orbos/99-02-12, 19
- 30, OMG. *UML Profile for Schedulability, Performance, and Time Specification* WA, OMG document n. ptc/02-03-02.
- 31, C. E.Pereira and P.Darscht, "Using object-orientation in real-time applical experience report," in *Proc. TOOLS Eur. 94* Versailles, France, 1994.
[Buy Via Ask*IEEE]
- 32, C. E.Pereira, "Real time active objects in C++/real-time UNIX," in *Proc. A SIGPLAN Workshop Languages, Compiler, Tool Support for Real-Time System* FL, 1994.
[Buy Via Ask*IEEE]
- 33, C. E. Pereira, "Applying object-oriented concepts to the development of r industrial automation systems," in *Proc. WORDS-97, IEEE Workshop on Objec Dependable Systems*, 1997, pp. 264-269.
[Abstract] [PDF Full-Text (428KB)]
- 34, E.Shokri and P.Sheu, "Real-time distributed object computing: An emerg *IEEE Computer*, pp. 45-46, June 2000.
[Abstract] [PDF Full-Text (76KB)]
- 35, J.Rumbaugh, *Object Oriented Modeling and Design* Englewood Cliffs, NJ: Hall, 1991.
[Buy Via Ask*IEEE]
- 36, D.Schmidt, D.Levine, and S.Mungee, "The design of the tao real-time obj broker," *Comp. Commun.*, vol. 21, no. 4, Apr. 1998.
[CrossRef] [Buy Via Ask*IEEE]
- 37, D.Schmidt and F.Kuhns, "An overview of the real-time CORBA specifcatio

Computer (Special Issue on OO RT Distributed Computing), vol. 33, pp. 56-61, 2000.

[\[Abstract\]](#) [\[PDF Full-Text \(272KB\)\]](#)

38, B. Selic, "Turning clockwise: Using UML in the real-time domain," *Comm. ACM*, vol. 42, pp. 46-54, Oct. 1999.

[\[CrossRef\]](#) [\[Buy Via Ask*IEEE\]](#)

39, B.Selic, G.Gullekson, and P.Ward, *Real-Time Object-Oriented Modeling* New York: Wiley, 1994.

[\[Buy Via Ask*IEEE\]](#)

40, B.Selic, "A generic framework for modeling resources with UML," *IEEE CSM (Special Issue on OO RT Distributed Computing)*, vol. 33, pp. 64-71, June 2000.

[\[Abstract\]](#) [\[PDF Full-Text \(304KB\)\]](#)

41, S.Vinoski, *Advanced CORBA Programming With C++* Reading, MA: Addison-Wesley, 1999.

[\[Buy Via Ask*IEEE\]](#)

42, A.Wollrath, R.Riggs, and J.Waldo, "A distributed object model for the java language," *USENIX Comput. Syst.*, vol. 9, no. 4, pp. 265-290, 1996.

[\[Buy Via Ask*IEEE\]](#)

43, R.Holz, L.Becker, and C. E.Pereira, "On mapping RT-UML specifications to C++ API: Bridging the gap," in *Proc. 5th IEEE Symp. Object-Oriented Real-Time Computing (ISORC'2002)* Washington, DC, vol. 9, May 2002, pp. 348-355.

[\[Buy Via Ask*IEEE\]](#)

[Search Results](#) [\[PDF FULL-TEXT 779 KB\]](#) [NEXT](#) [DOWNLOAD CITATION](#)

[Home](#) | [Log-out](#) | [Journals](#) | [Conference Proceedings](#) | [Standards](#) | [Search by Author](#) | [Basic Search](#) | [Advanced Search](#) | [Join IEEE](#) | [Web Account](#) | [New this week](#) | [OPAC Linking Information](#) | [Your Feedback](#) | [Technical Support](#) | [Email Alerting](#) | [No Robots Please](#) | [Release Notes](#) | [IEEE Online Publications](#) | [Help](#) | [FAQ](#) | [Terms](#) | [Back to Top](#)

Copyright © 2004 IEEE — All rights reserved

IEEE HOME | SEARCH IEEE | SHOP | WEB ACCOUNT | CONTACT IEEE



Membership Publications/Services Standards Conferences Careers/Jobs

IEEE Xplore®
 RELEASE 1.6

 Welcome
 United States Patent and Trademark Office

[Help](#) [FAQ](#) [Terms](#) [IEEE Peer Review](#)
[Quick Links](#)

» ABS

Welcome to IEEE Xplore®

- ☐ Home
- ☐ What Can I Access?
- ☐ Log-out

Tables of Contents

- ☐ Journals & Magazines
- ☐ Conference Proceedings
- ☐ Standards

Search

- ☐ By Author
- ☐ Basic
- ☐ Advanced

Member Services

- ☐ Join IEEE
- ☐ Establish IEEE Web Account
- ☐ Access the IEEE Member Digital Library

[Search Results](#) [\[PDF FULL-TEXT 616 KB\]](#) [DOWNLOAD CITATION](#)


Toward optimal assignment of human functions in defense systems via uniform object modeling and simulation

Nguyen, C.M. Kim, K.H.

 Adv. Syst. Technol. Branch, Naval Surface Warfare Center, Dahlgren, VA, USA
This paper appears in: Object-Oriented Real-Time Dependable Systems, Proceedings., Third International Workshop on

Meeting Date: 02/05/1997 - 02/07/1997

Publication Date: 5-7 Feb. 1997

Location: Newport Beach, CA USA

On page(s): 332 - 338

Reference Cited: 12

Number of Pages: x+356

Inspec Accession Number: 5685322

Abstract:

The view of a complex real-time computer-based application system as one in which only automated machine components are embedded but also human servers, those who perform time-sensitive tasks in close interaction with machine components are "embedded" as components, is adopted. Efforts for optimal scheduling of components can then be applied not only to the machine components but also to the embedded human operators, preferably in a uniform integrated fashion. The risk incursion function (RIF) introduced earlier by the authors is advocated as a method for optimal allocation of both machine and human resources. Also, an approach to a uniform representation of application environments, machine functions and components and human functions and components in the form of a uniform network of real-time objects is advocated.

Index Terms:

man-machine systems military computing military systems object-oriented programming time systems resource allocation risk management scheduling complex defense systems complex real-time computer-based application system embedded automated machine components embedded human operators human components human functions machine components machine functions optimal human function assignment optimal resource allocation optimal scheduling real-time simulation risk incursion function time-sensitive tasks uniform

modeling uniform real-time object network

Documents that cite this document

There are no citing documents available in IEEE Xplore at this time.

Search Results [PDF FULL-TEXT 616 KB] DOWNLOAD CITATION

[Home](#) | [Log-out](#) | [Journals](#) | [Conference Proceedings](#) | [Standards](#) | [Search by Author](#) | [Basic Search](#) | [Advanced Search](#) | [Join IEEE](#) | [Web Account](#) | [New this week](#) | [OPAC Linking Information](#) | [Your Feedback](#) | [Technical Support](#) | [Email Alerting](#) | [No Robots Please](#) | [Release Notes](#) | [IEEE Online Publications](#) | [Help](#) | [FAQ](#) | [Terms](#) | [Back to Top](#)

Copyright © 2004 IEEE — All rights reserved